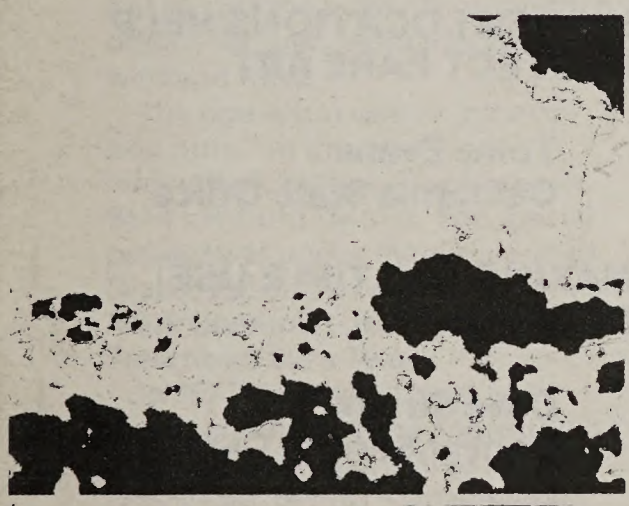
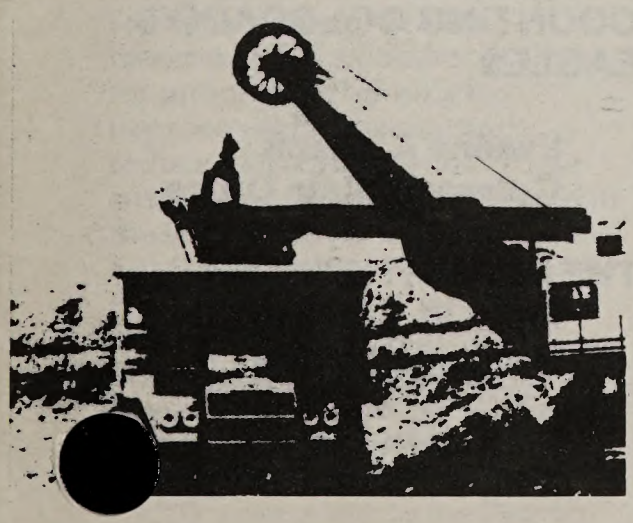
Our Public Lands

Summer 1980





Making Multiple Use Decisions

See page 8

U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

As the Nation's principal conservation agency, the Department of the Interior has basic responsibility for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States—now and in the future.

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Our Public Lands

Summer 1980

Vol. 30 No. 3

Contents

Multiple Benefits Seen In Prescribed Burning

Connie Kingston
California State Office

Everyone was in position, ready for action. A final check was made on wind, speed and direction. Tension mounted. Finally, the command everyone waited for crackled on the radio: "Lift off!"

Within minutes, fireballs were dropping from the air, igniting the brush as they landed. Soon a wall of fire was moving up the mountain.

No, this wasn't the filming of a science fiction thriller. But many elements characteristic of producing a motion picture were present. The operation had been carefully planned. The directors [illegible]d defined necessary weather [illegible]nditions and selected the location and cast with great care. Here the similarities ended. The objective was not to win an Oscar but to save the public thousands of dollars through reduction of wildland fuels.

The operation was a "prescription burn" of the South Pinnacles/Chalone Creek area in BLM's Folsom District. The special project was under the direction of Diablo Resource Area Manager Mark Lawrence, assisted by the Prescribed Burn Team.

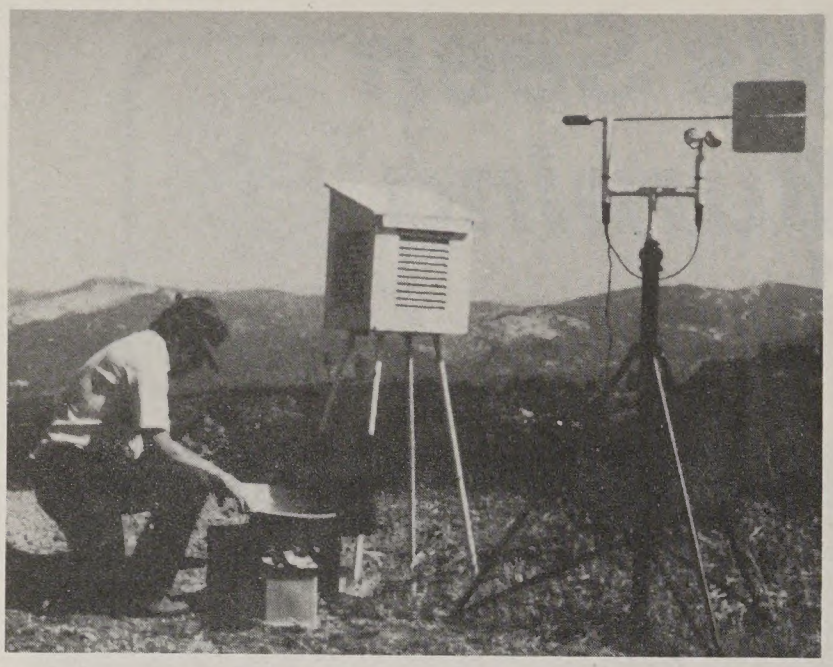
In 1977 the use of fire as a management tool was addressed by the Diablo Resource Area in the Fresno-San Benito Management Framework Plan. The MFP recommended a number of areas for prescription burning to improve wildlife habitat and reduce fuel accumulation. These areas were specifically addressed in the District Five-Year Burn Plan for San Benito County, with the South Pinnacles/Chalone Creek Area identified as the number one priority area by the California Department of Forestry (CDF) and [illegible] National Park Service [illegible]nnacles National Monument). CDF, contracted by the District for fire suppression responsibilities on BLM-administered public land, was concerned with the excessive fuel build-up of chamise chaparral on approximately 2,000 acres adjacent to the Pinnacles National Monument.

A prescribed fire well underway. Prescribed burns are helpful for increasing water yield, improvement of grazing and deer browse.

Rod Broyles, Pinnacles Superintendent, also shared CDF's concern that a wildfire starting on BLM public land could roar into the monument from the south. Because the Pinnacles is a wilderness area and the BLM public land is a wilderness study area, suppression restraints imposed by law would virtually render the fire uncontrollable.

In reviewing the area, it became apparent that if a prescribed burn was to be done, the most logical approach would be to include intermingled private land and utilize existing roads and trails as control lines. The land owner, Albert Hansen of Salinas, wholeheartedly supported the plan. He recognized the beneficial impacts to livestock grazing of the removal of the heavy brush.

A 560-acre State school land parcel also was located within the perimeter. It, too, was covered with old brush and had chained brush windrowed on a portion of it. A unique fuels management agreement was signed with the California State Lands Commission which granted BLM permission to maintain fuel breaks and conduct a prescribed burn on the State school lands.



(Top left) Monitoring weather conditions at a site begins weeks before the prescribed burn to reveal unique climate traits. (Top right) An evaluation plot at a burn site provides a permanent record of a burn's effectiveness. (Bottom) A wall of fire burning to a previously established fire break is monitored by BLM firefighters.

Everything began to fall into place. BLM, together with the California Department of Forestry, the National Park Service and the Hansen Ranch all had similar objectives. Additionally, the California Department of Fish and Game supported the proposed burn as being beneficial to wildlife.

The burn was scheduled for late fall 1979, when wind, temperature, relative humidity and precipitation, combined with the fuel and terrain conditions, would result in a cooler and controllable burn.

Originally, the plan called for drip-torches to ignite the area but that was before the helitorch came to the attention of Rich Hafenfeld and Dave Moore of the Folsom District Office while attending a prescribed fire training session.

During the session, they had the opportunity to see the helitorch demonstrated on the Mendocino National Forest. Upon returning to Folsom, they set wheels in motion for the helitorch to be used in the South Pinnacles burn.

According to Hafenfeld, "It was unbelievable! We had taken cover inside a pick-up as it had started to rain and watched as the helitorch ignited the burn area. It was ideal for the rough, rugged South Pinnacles Area."

The helitorch, suspended below a helicopter, isn't a new system as it has been used in Canada for some time. The difference, however, is in the use of an alumagel/gasoline mixture instead of a diesel and gasoline mixture. The gelled fuel droplets penetrate the fuel bed to get fire on the ground and allow better and extended burning under marginal conditions. The heat intensity is great enough that effective burns can be conducted during the late fall and winter periods.

The torch also allows greater versatility in covering a larger area with fewer people and allows accomplishment of burns in a shorter period of time under marginal conditions.

Suspense and drama, common ingredients in many successful film ventures are almost inherent in any fire related activity. As evidence of fall crept through San Benito County suspense mounted in the Folsom District. The Fire Team was ready and anxiously waiting for the desired prescription conditions.

(Top left) Helitorch and chopper being prepared for flight. (Bottom left) The helitorch consists of an ignitor and a 55-gallon drum of an alumagel/gasoline mixture. The mixture is heavy enough to penetrate brush cover and set fire to underbrush. (Right) The firey globs of gel spew from a helitorch.

On November 26, 1979, equipment and manpower converged upon the proposed burn area. Camp was set up and the team made last minute preparations and reviewed assignments.

Early the next morning the area was bustling with activity. Tension and anticipation permeated the surroundings as everyone was eager to get started. Inter-agency crews were carefully preparing the volatile mixture at the heliport for the first run. And, at last, everything was ready and the go-ahead was given.

The South Pinnacles/Chalone Creek Prescribed Burn, covering ,000 acres, had a successful nding:

1. Wildlife habitat was improved by breaking up the heavy brushfields,
2. Livestock grazing potential was improved on private and Federal land,
3. Fire had been reintroduced into the chaparral ecosystem which is dependent upon fire for rejuvenation,
4. The threat of a major wildfire entering the south end of the Pinnacles National Monument had been greatly reduced,
5. Fuels that had accumulated for 30 years had been reduced 50 to 70 percent,
6. Chained and windrowed brush on both State and Federal lands, which was the result of unauthorized chaining in 1973, was eliminated.

In addition, the helitorch, using alumagel, proved a valuable tool for all phases of fire management, including suppression actions.

The burn also was an outstanding demonstration of interagency/industry cooperation. The Monterey Ranger District, Forest Service, made the arrangements for the use of the Los Padres National Forest helitorch and Forest Service crews from the Mount Pinos District were made available to mix the jellied gasoline and load the helitorch. Others supplying equipment and/or manpower were the National Park Service Western Region Headquarters, Pinnacles National Monument; King City CDF Ranger Unit; all BLM Nevada districts, Nevada BLM State Office, and the Hansen Ranch.

Hidden Locations Help Protect Rare Art

Tom Evans
California State Office

One of the rarest kinds of art created by native Americans — pictographs — also may be the most vulnerable to loss: they are comparatively scarce and easy to destroy.

Petroglyphs (rock carvings) and intaglios (images made by scraping the desert floor) have suffered heavily from vandalism, but special circumstances work in their favor. The vast number of petrogylphs give assurance that some will survive; the typical large size of an intaglio requires a major physical effort for its total destruction.

Not so with pictographs (rock paintings.) One warped mind and one can of spray paint are two-thirds of what is needed to cause irreparable loss on a wide scale. The missing third element is knowledge of location and this, so far, has been a main protection.

Lack of knowledge about location cannot be counted upon to last, however. Inquisitive people continue to push through impenetrable brush, to descend one more canyon and explore one more hillside. A few of them carry spray paint. When an archeologist sets out to revisit a pictograph site, he dreads what he may find. It is not uncommon for him to find what he dreads.

No one knows for certain what is lost when a pictograph is ruined, but there are fragments of information from many sources that indicate who made the rock paintings and why they were made. If these indications are correct, the rock art was of extreme importance in prehistoric cultures.

There is continuing effort to find out more about the meaning of pictographs, but "hard evidence" is almost nonexistent. There are few accounts from Indians themselves, but these usually are scraps of information, often given with reluctance.

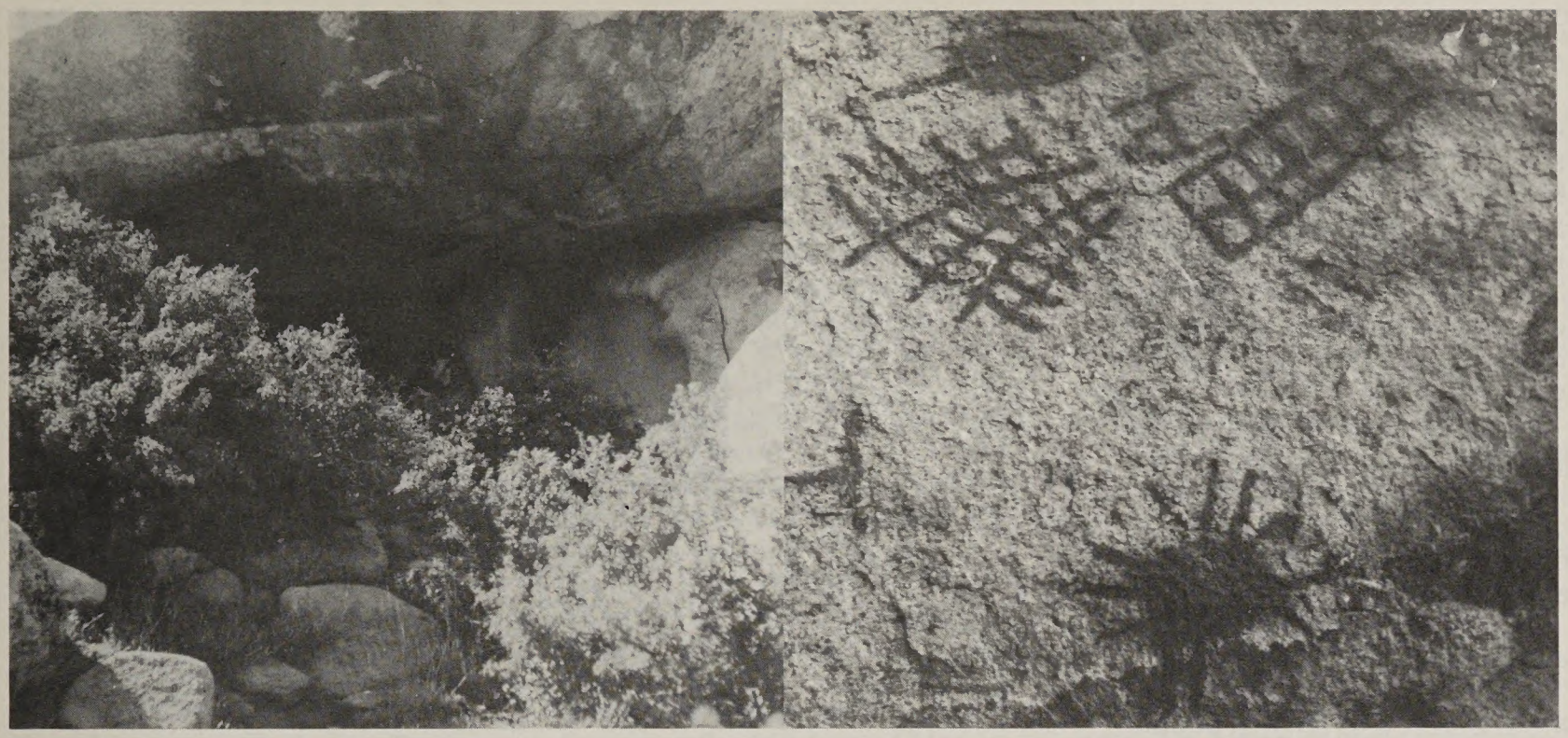
The detective work deals with bits and pieces of information, mixed with assumptions and the little that is really known. The conclusions that finally are made rest on the loose sand of not knowing absolutely.

One of the most notable detectives in the field of pictograph research is Ken Hedges, Curator of Archeology and Ethnology at the Museum of Man in San Diego. He recently completed an inventory of 27 rock art sites for the Bureau of Land Management in the McCain Valley Study Area in eastern San Diego County. Hedges has researched rock paintings in the area for 10 years and has authored numerous papers on his findings. His recommendations for BLM action to help safeguard the sites are given later in this story.

The rock art inventories are in a portion of the area once dominated by the Kumeyaay (Koom-yi), or southern Diegueno Indians. They occupied most of what is now San Diego and Imperial Counties and a portion of Northern Baja California. There is evidence they lived in the area at least 1200 years.

The known rock painting sites occur in an area of desert mountains about 80 miles long and up to 20 miles wide — only a fragment of the area occupied by the Kumeyaay. The sites extend into Baja for about 30 miles. All of

A Park Ranger explains petroglyphs to a young visitor.



(Left) Entrance to "Wikwip" cave, one of the most outstanding rock art sites in the McCain Valley Study Area. (Right) Pictographs on the ceiling of Wikwip are in red, black and yellow and depict supernatural symbols.

the paintings within this area have similar design features and are known as the La Rumorosa style. The name is derived from the site of the most elaborate style and is located in Baja.

All of the sites are associated with late prehistoric or historic Kumeyaay habitation. The latter is indicated by representations of men on horseback, and one site appears to depict Christian symbols.

Hedges said the typical sites are in shallow rock shelters and are clearly visible to anyone standing a considerable distance from the paintings. This degree of visibility is a key factor in vulnerability of the sites.

La Rumorosa style of painting is characterized by human figures with fingers and/or toes, lizard forms, sunbursts, circles and grids. They are painted in red, black, white and yellow.

The red paint is red ocher (iron oxide). The black is manganese dioxide and some charcoal. The source of white pigment is unkown but may be chalk or gypsum. The yellow is yellow ocher. Hedges believes the difficulties of obtaining raw materials and mixing paints would preclude making paintings for frivolous reasons. He is convinced that most of the rock art of La Rumorosa style was done by shamans, the individuals who had the ability to contact and interact with the supernatural world.

"The shaman was much more than a medicine man or a witch doctor," Hedges said. "His contacts with the supernatural were for many purposes — to increase game, to bring about the abundance of plant foods, control weather, foster human fertility and cure illness.

"His contact with the supernatural could occur through visions, dreams and trances which could occur naturally, or which could be produced by fasting, or by the use of hallucinogenic substances.

"Such activities may result, as they have in many cultures, in art which illustrates mythological themes, the shaman's experiences, being and forces he encounters in the supernatural power, or the shaman himself as he performs his magical duties."

Shamanistic performances and paintings may have been connected with a wide variety of ceremonies, both public and private, Hedges said. He noted that the easily visible sites may have been the location of ceremonies conducted in the presence of numbers of people. There also are scatterings of small sites in out-of-the-way places. These may have been "power spots" where the shaman went alone to contact the supernatural and restore his power.

Among the most commonly recurring features in the rock paintings are abstract designs which Hedges believes might be pictures of phosphenes — the light images that many people can "see" when they close their eyes. The images can be caused and heightened by rubbing the closed eyes. Phosphenes also can appear with severe headaches or if something hits your head hard enough to cause you to "see stars."

"What you are dealing with," Hedges said, "are stimuli received by the brain which the brain interprets as visual stimuli in the absence of true visual stimulation. The brain has a way of dealing with things it can't understand or cope with, so it interprets the phosphenes as light or a visual pattern. Phosphenes are easily produced by most people by just closing their eyes but some people cannot see them at all."

Hedges said there are a number of basic patterns and elements that occur frequently in phosphenes. He has asked several of his friends to record the images they see so he

can compare them to the abstract designs in pictographs.

"We know that the shaman used the hallucinogen jimson weed in trances," he said, "and this would intensify the phosphenes. There are other ways of achieving this result, such as fasting. To the north, in the Tehachapi area, the Indians ingested red ants and let them bite internally. Apparently, this also caused hallucinations."

Tea made from the roots of the jimson weed was used in shamanistic ceremonies. There is not likely to be modern research to find out about hallucinogenic enhancement of phosphenes.

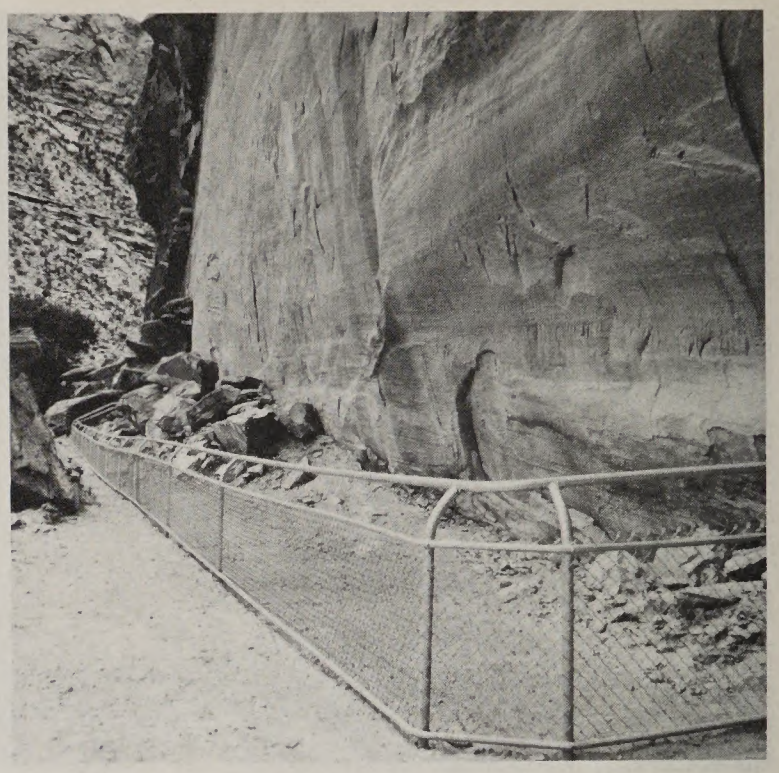
"The jimson weed is a very dangerous plant," Hedges said. "It's easy to overdose. Even the Indians' accounts tell that people sometimes died after drinking the tea."

Other designs which occur at some rock painting sites appear to be related to the Kumeyaay story of creation. These include the presence of two humanlike figures, a centipede-type representation and a whirlpool.

In the story of creation, there were two brothers who lived under the earth. They came to the surface through the sea. One of them opened his eyes in the salt water and was blinded. His movements are the cause of earthquakes. The other brother was the creator of everything. When he died, no one knew the ceremony for the dead. One of the people was sent as a bubble or whirlpool in the river to the sea to search for the monster, Maihiyowita, a giant centipede-like creature.

The monster came and taught everyone the ceremony. Then the monster curled himself inside a house. Fire was set to the house and the monster was burned. He broke into pieces, which scattered throughout the world. The legend says that is how we got different cultures and languages.

Another recurring design is like the skeletal figure, which Hedges said bears out a theme that is common to shamanism in North America and Siberia. The bones are viewed as the essential source of the life force, rather than the flesh and vital organs.



Fencing erected by BLM protects ancient petroglyphs and early explorers' signatures.

"In shamanism, it is from the bones that shaman is regenerated after his death and dismemberment in the supernatural world," Hedges said. "This theme has not been specifically identified for the Kumeyaay, and the presence of the skeletal motif must remain as a tantalizing symbol of all that we do not know."

Among other design elements in rock art of the McCain Valley study area which have shamanistic implications are those with a sun motif. These occur at numerous sites and reflect the belief that the sun was the source of life and power.

Hedges has identified rock art sites which are associated with the winter solstice. He also located what appears to be Kumeyaay "observatories" used to determine when the sun would halt its chilly movement on the southern horizon and return northward to restore life.

"If you observed the points at which the sun rose from the time of the summer solstice (June 21 or June 22), it would appear to move toward the South each day. It would reach the southernmost point at winter solstice, on December 22," Hedges said.

"As the winter solstice approached, it was a bad time for Kumeyaay, as well as many other people. If something was not done to stop the southern movement of the sun, there would be no new life and the world would come to an end.

"Even though the sun stopped its southern movement every year at the same time, you could never be sure it would happen. It was necessary to do the ceremonies. It was a time of real crisis and it was believed that the shaman was able, through his contacts with supernatural powers, to have some measure of control over the cosmos."

For the last four or five days centered on the winter solstice, it could not be detected by naked eye observation that the sun was coming up in a different place on the horizon. Would it go North again and bring springtime and new life, or would it go South again? Finally, northern movement could be seen. There are ethnographic accounts that this event caused enthusiastic song and dance.

Hedges has made winter solstice observations from some of the places used by Kumeyaay for the same purpose. The observatories have rock alignments in which one axis points toward a distant horizon marker such as a prominent rock or mountain peak. In one case, the horizon marker, where the sun rises, is 14 miles away and allows a great deal of precision in determing the time of winter

solstice, Hedges said. The rock alignments at one of the observatories have since been ruined by vandals.

Hedges is confident that many of the general assumptions made about Kumeyaay rock art are correct because they are based on a general knowledge of shamanism throughout the West.

"As far as getting specific explanations," he said, "I think that literally is impossible. What we know about shamanistic experiences in general indicates that any individual shaman's experience is going to be unique, so only the person who made the painting would know what it is really about.

"What Indians know about the rock art today is really hard to say. They know it's important, but they are reluctant to talk about it."

Are there shamans among the Kumeyaay today?

"I don't know," Hedges said. "There are people who have shamanistic knowledge. Whether they are actually shamans or not is hard to say. I think there probably are some. You can't just contact one and talk to him. I know of no one who claims to be a shaman or who says he can interpret the rock art."

How can the rock paintings be protected?

"Don't tell where they are," Hedges said. "There is nothing short of keeping guard at each site that will give complete protection. There are no coatings you can cover them with."

In his draft report to BLM, Hedges says:

"...Where sites are open to public visitation, there is inevitably an increase in destruction through vandalism...In general, the remote location of the rock art sites and the fact that most of the smaller sites are not obvious to the casual visitor have served to protect rock art resources in the McCain study area.

"Whether restricted access and public education can solve these problems (of vandalism) remains to be seen, but it appears to be advisable to leave closed those areas which are currently inaccessible, and to incorporate sensitive areas...into zones of restricted access...In no case should an archeological resource be publicized to the extent that its location is revealed."

Hedges said it is fortunate that all but a few of the known rock art sites in the study area are either on public land administered by BLM or in Anza-Borrego State Park. There is one outstanding exception—a site called "Wikwip," or "talking rock." It is said that, if you stand in front of a particular rock at the site and talk to it, the rock will repeat your words.

Wikwip is considered one of the largest and most significant of all known sites and it is the only Kumeyaay site on the California side of the U.S.-Mexico border about which there is ethnographic data.

In the late 1920's, Malcolm Rogers of the Museum of Man obtained an account of the site from Wass Hilmawa, a Kumeyaay, that paintings in the cave were made by shamans as they prepared for ritual dance. It is not known if she was present when the paintings were made, or if the story had been passed down to her.

The site, about 100 yards from BLM-administered land, is a large rock-shelter cave on a hillside overlooking a permanent spring and what formerly was a large Indian village.

Paintings are located on the ceiling and back wall of the shelter. They include rectangular grids, an oval grid, sunburst, ladder, herringbone design, what appears to be a serpent, full-bodied anthropomorphs, lizards, an arrow, two-armed crosses, and many other designs. (Some of the designs are shown in accompanying photos.)

In his report, Hedges recommends that BLM acquire the site by land exchange or other means. "Inclusion of the site in an area with wilderness designation," he said, "would do much to protect it from increased access."

Wikwip is highly visible. Already, there are empty beer cans within 200 yards of the cave entrance.

Russ Kaldenberg, BLM's Riverside District archeologist, agrees that attempts should be made to acquire Wikwip and a few other sites on private lands in the area through exchange or purchase. He said some of the areas currently are suffering vandalism and each of the sites contains a portion of the data base needed for future research.

The BLM archeologist noted that almost all cultural resource investigations on public lands administered by the Bureau are now carried out to prevent adverse impacts on archeological resources by some proposed project on the land. The inventory conducted by Hedges, for example, will be part of a grazing environmental statement.

"Cultural resource managment currently is a support function of other activities," Kaldenberg said. "It is not a bona fide program in its own right. The data collected in this manner are not structured toward the entire cultural resource data base as an entity in itself. Thus, our evaluation of the entire span of cultural resources is dependent, not upon a representative sample of the entire data base, but upon a skewed sample.

"Research investigations must be structured around gaps in our knowledge and follow strict research objectives, not only as a response to other programs. In effect, this objective will go far toward converting the cultural resource management program from a support function to a valuable and viable resource management program in its own right."

If Kaldenberg could achieve a research project "for its own sake"—say for Kumeyaay rock art—it could be extremely valuable. There are many Kumeyaay still living in the area, on reservations and off. Some of them might be able to shed light in an area of considerable darkness.

The subject matter is certainly intriguing. Hedges said in the summary of his study for BLM: "Rock art is a very significant part of the archeological record in that it provides one of our rare glimpses into the sacred, non-material world of the North American inhabitants.

"Rock art sites are tangible links to the supernatural world and, although we cannot fully interpret them, their sacred status renders them doubly significant in any preservation and management decisions."

BLM's New Planning System

Making Multiple Use Decisions

Dave Strunk
Denver Service Center

Many things must take place and many questions be answered before a BLM manager can even begin to formulate a multiple use plan. Probably the first question a BLM manager would ask is, "What are the resources in the area? What are the major issues that could affect the way the area is used and how much do we know about them?"

Before he begins answering even the first question he will need:

- Basic inventories of the resources in the planning unit.
- Information on environmental values.
- Information on the economic needs of the Nation, State, region, and local communities.

Public land use planning is a public matter. Meetings such as these assure that persons and agencies have a chance to review and comment.

- Information on the social factors which could be significant in managing the area.
- Guidance on national, State, and local policy, and legal constraints.

For years, the Bureau of Land Management (BLM) has been making multiple use decisions using a comprehensive planning system. Such a dynamic system is absolutely essential for an agency entrusted with the management of almost one-fifth of the nation's land.

Public lands managed by BLM are what is left of the public domain after individuals, corporations, State and local governments, and several Federal agencies acquired the most desirable lands during the country's westward expansion in the last century. Once the lands nobody wanted, these lands—over 350 million acres—have turned out to be a very rich national heritage indeed. Scattered unevenly throughout the West, these lands possess resources of enormous tional value and provide some of he most awesome and spectacular scenery to be found anywhere in the Nation. They are what is left of America's "wide open spaces."

These same holdings contain vast amounts of fossil fuel for America's energy needs and other important minerals. They contain millions of acres of rangeland that help provide the country's meat supply and forests that supplement the Nation's timber production. They have significant recreational and wilderness values. They are home to hundreds of thousands of antelope, deer, elk and caribou, as well as millions of smaller wild animals and fish. And they possess magnificent scenic values and contain a vast cultural and historical heritage.

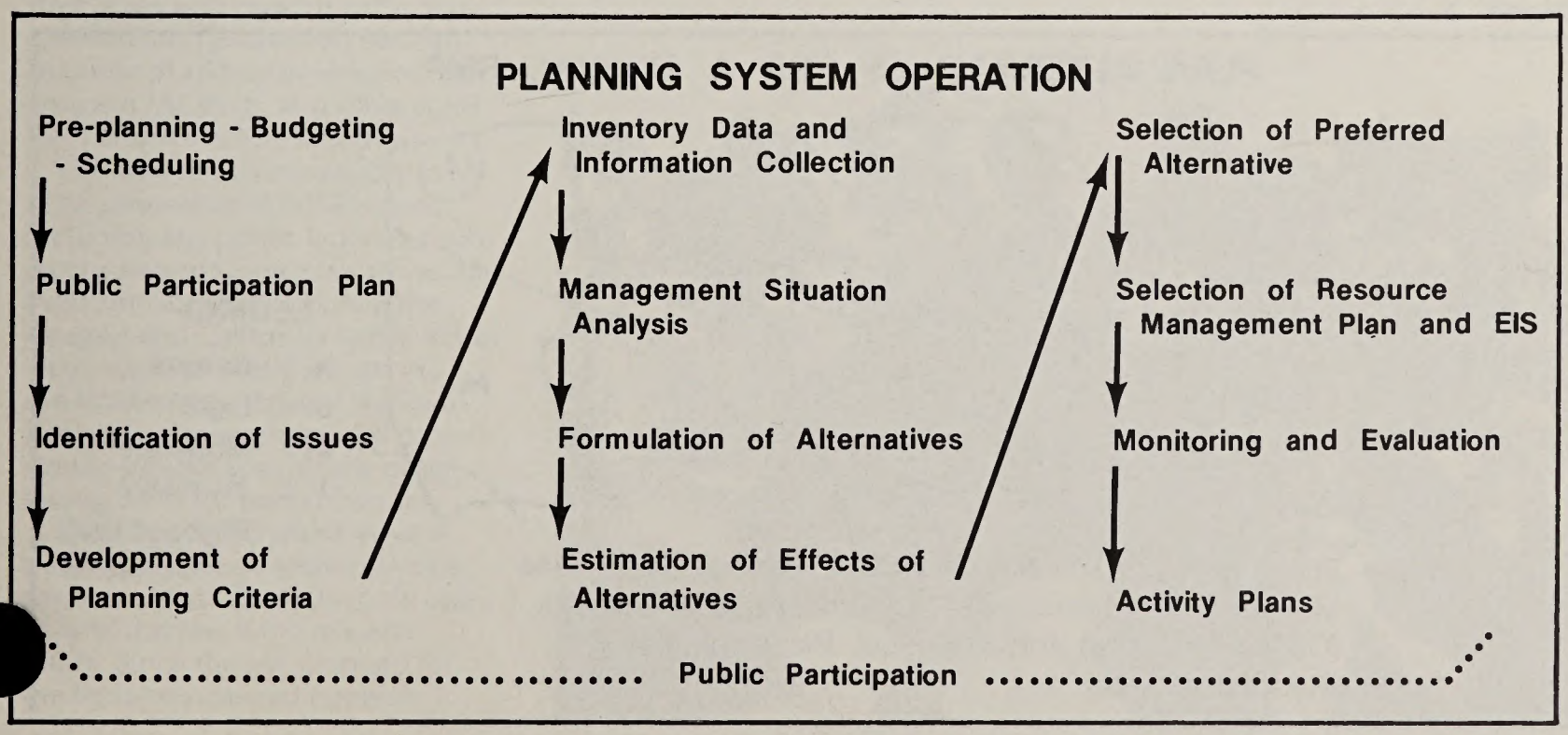
The Public Lands—174 million acres in the 11 Western States and 182 million additional acres in Alaska—are managed for the use and enjoyment of all Americans by BLM. The Bureau's job is to find ways of accommodating the increasingly competitive and conflicting demands on these resources while protecting and ensuring their long-term, varied uses.

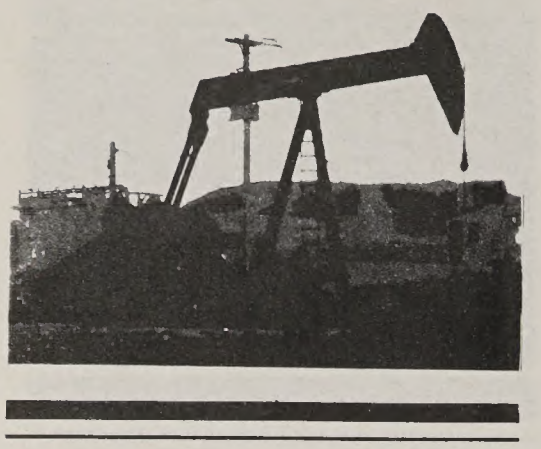
Because of this resource diversity and competition for numerous valid uses of the same acre of ground, a planning system is used to maximize resource opportunities, and minimize resource conflicts. The planning system provides the framework to obtain public

input, collect and analyze data, formulate plan alternatives and recommendations, and make resource allocation and land use decisions.

This planning system is now changing to reflect the increased complexity, competition, and sophistication of the 1980's and beyond. Multiple use decisions will now be based on a new planning system, which was developed in response to Section 202 of the Federal Land Policy and Management Act (FLPMA) of 1976, and other environmental and land use planning laws recently passed by the Congress. BLM was, to a large extent, already in full compliance

Diagram 1. The new planning process calls for a great deal of review and recycling among actions to insure an adequate plan. The test will be whether there is clear documentation that all actions have been adequately completed.





with the law with its existing planning process. Because of this compliance, BLM Director Frank Gregg initially considered a minor revision or refinement of the existing planning system.

After much deliberation and consultations with Congressional committees, other agencies, the Forest Service, the Office of the Secretary and other Departmental officers, and numerous BLM experts, Director Gregg determined that regulations were needed so that the basic rules for planning would be widely known.

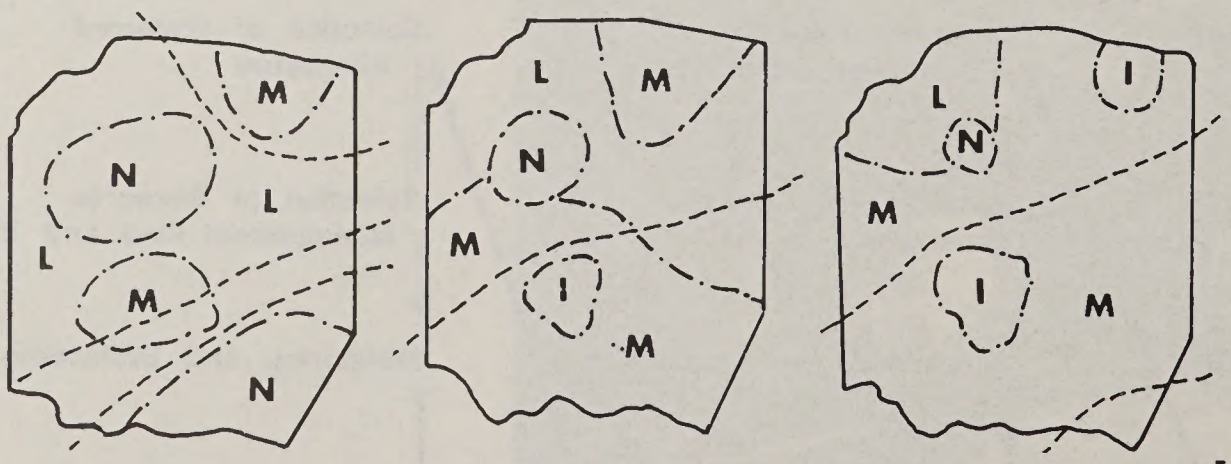
Public involvement played a big part in formulating draft regulations to implement this new planning system. Provisions for enhanced public participation in the new planning system itself is important with the increased legislative emphasis on plan coordination with other Federal agencies, and State, local and tribal governments. The new finalized planning regulations became effective on September 6, 1979.

Certain principles, which were laid out in FLPMA, will govern the development and revision of these multiple use plans for public lands.

1. The principles of multiple use and sustained yield (set forth in FLPMA and other applicable laws) shall be adhered to.
2. A systematic interdisciplinary approach shall be used to achieve integrated consideration of physical, biological, economic, social and other sciences, and the environmental design arts.
3. Priority shall be given to the identification, designation, protection and special management of Areas of Critical Environmental Concern (ACEC's).
4. The relative significance of the public land products, services, and uses to local economies shall be considered.
5. To the extent it is available, the inventory of the public lands, their resources, and other values shall be relied upon.
6. Present and potential uses of the public lands shall be considered.
7. Impact on uses of adjacent or nearby non-Federal lands and on non-public land surfaces over Federally owned minerals shall be considered.
8. The relative scarcity of the values involved and the availability of alternative means (including recycling) and sites for realization of those values shall be considered.
9. Long term benefits and detriments to the public shall be weighed against short term benefits and detriments.
10. Compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans shall be provided for.
11. To the extent consistent with the laws governing the administration of the public lands, the resource inventory, planning, and management activities of or for such lands shall be coordinated with the resource planning and management programs of other Federal departments and agencies, States and local govern-

Diagram 2.

PLAN ALTERNATIVES FOR A TYPICAL RMP



Note: The schematic display illustrates various Land Use Mixes (Plan Alternatives) by Multiple Use Classes (Capability Units) for a typical Planning Area (Resource Area).

ments, and Indian tribes.

12. The public shall be provided with early notice and frequent opportunity to participate in and comment on the preparation of plans and related guidance.

The new BLM plans are called Resource Management Plans (RMP's). They are prepared and maintained for resource areas, the smallest administrative subarea used by BLM. There are from two to four resource areas in a typical BLM District, with a total of 178 resource areas in the Western States (exclusive of Alaska) averaging 950,000 Federal surface areas in size. BLM will, with public involvement, develop, maintain, and, when appropriate, revise land use plans which provide for the multiple use of the public lands on an area or tract basis.

An Environmental Impact Statement (EIS) on the proposed actions contained in a plan will be prepared and integrated into the Resource Management Plan to form one document. The Draft Plan/EIS and Final Plan/EIS will be published and filed with the U.S. Environmental Protection Agency.

Resource Management Plans will be the major means for coordinating among the multiple uses of public land. They will allocate resources between uses and/or levels of use and indicate the direction of any change needed in resource use or management. RMP's will also prescribe the management and protection needed for areas of critical environmental concern (ACEC's), and other sensitive resource values and uses.

The new regulations apply to all BLM administered public lands, including any public land area subject to Acts of Congress such as the Wild and Scenic Rivers Act, the Oregon and California Lands Act of 1937, National Trails System Act, the Wilderness Act, and National Recreation Areas Acts, and other similar statutes specifically designating lands for particular uses.

These regulations also govern the preparation of resource management plans when the only public land interest is the mineral estate. Since the use planned for the Federally owned minerals could have a major impact on the nonpublic land surface in the same area, the views and concerns of owners of the surface will be obtained and considered. BLM manages about 760 million acres of subsurface mineral estate resources.

There are nine major required actions in the new planning process, although in actual practice, a great deal of review and recycling among actions is expected to insure an adequate plan. Diagram 1, entitled, "Planning System Operation," highlights this process. The principle test, at the plan approval stage, will be whether there is clear documentation that all actions have been adequately completed. In addition, prior to starting an RMP planning process, two prerequisite steps are necessary: (a) Pre-planning—Budgeting—Scheduling, and (b) Public Participation Plan.

1. *Identification of Issues.* This happens at the outset of the planning process and is repeated as necessary during the process. BLM's objective is to keep the planning process focused on key issues identified by the public, other Federal agencies, State and local government, Indian tribes, and BLM land managers.
2. *Development of Planning Criteria.* This happens next, based on the issues, planning criteria are updated as necessary during the process. The planning criteria guide development of the plan by setting standards for data collection, establishing alternatives to be examined, setting criteria for evaluating alternatives, and setting criteria for selection of a preferred alternative. The planning criteria are published for public comment before being finalized for use in preparing the plan.
3. *Inventory Data and Information Collection.* This includes the assembling of resource, environmental, social, economic, or institutional data needed to prepare the plan.
4. *Management Situation Anal-*

ysis. This is primarily a capability analysis. It examines the capability of the public lands to respond to the needs and issues identified earlier in the process.

5. *Formulation of Alternatives.* Several complete, reasonable resource management alternatives are prepared. One will be for no action or continuation of present levels or systems of resource use. The other alternatives could range from those favoring resource protection to those favoring resource production. The span of alternatives will be responsive to the issues raised.
6. *Estimation of Effects of Alternatives.* This includes an estimate and display of the physical, biological, economic and social effects of implementing each alternative.
7. *Selection of Preferred Alternative.* This includes evaluation of the alternatives and their effects according to the planning criteria and the development of a preferred alternative. At this point an integrated draft plan and draft environmental impact statement will be published for a 90-day public comment period.
8. *Selection of Resource Management Plan.* After evaluating comments on the draft, a final plan is prepared which can draw on any combination of parts which were shown in the proposed plan and alternatives. This is incorporated into the integrated final plan and final environmental impact statement.
9. *Monitoring and Evaluation.* While monitoring and evaluation occur after the plan is approved, they are considered to be part of the planning process. The approved plan will prescribe standards and intervals for monitoring based on the sensitivity of the resource to the decisions involved. For example, threshold levels will be established as maximum or minimum constraints in the RMP, to define levels of resource use, production or development. Monitoring will then determine whether any established threshold levels have been met or exceeded, whether there has been a significant change in related plans of other Federal agencies, State or local government or Indian tribes, or whether there is new data of significance to the plan.

Different combinations of land uses, activities, and resource allocations will be used to differentiate the alternatives displayed by Multiple Use Classes: natural, light, moderate and intensive. This approach differs from the previous planning system, which depicted uses on a more functional activity-by-activity basis, utilizing tunnel vision techniques. The new planning system emphasizes a greater combination of compatible multiple uses by forcing conflict resolution during the early development stage. It also focuses greater attention on the capability of the resources within the planning area.

Diagram 2, "Plan Alternatives for A Typical RMP", illustrates three action alternatives for a schematic planning area.

Time frames for completing the new planning process will vary with individual area characteristics.

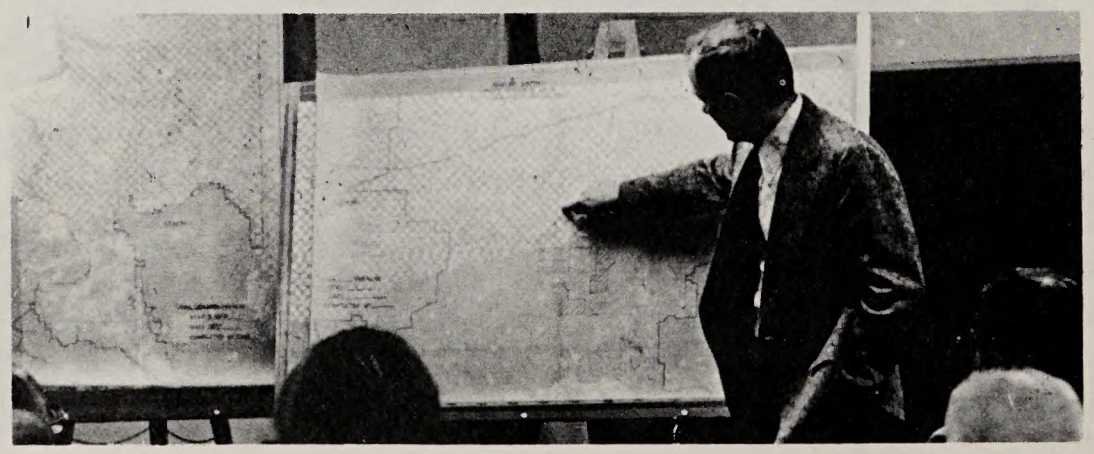
The average plan cycle is 10 years. Although plans can be revised sooner, an RMP will be redone at least every 10 years, based on monitoring and evaluation findings, new data, new or revised policy and changes in circumstances affecting the entire plan or major portions of the plan.

A revision is interpreted as a whole new plan. The entire plan is changed and updated. A plan amendment is caused by the same factors as those of a revision, i.e. new data, revised policy, etc., but only a portion of the approved plan is affected — not the entire plan. As with all planning efforts, plan maintenance is conducted to reflect minor changes in data and refinements of the plan.

Such a major changeover in systems will require ambitious, varied orientation and training programs on an interim and long term basis for internal, as well as external, Bureau audiences.

Congress has recognized that public land management cannot be shut down while new plans are being prepared. Therefore, during transition BLM's actions are governed by existing plans, which can be amended, and, if no plan

Gene Kinch, Assistant District Manager, airs public land use proposals at a public meeting in Rawlins, Wyoming.



exists, appropriate resource management actions may still be taken. A typical planning process takes about four years, from the first identification of issues, through inventory, development of alternatives, environmental assessment, the filing of draft plan/EIS documents, formal public comment, and the publication of the final plan/EIS documents. A planning status report and schedule, which lists ongoing plans and new planning starts, is published in the Federal Register at the beginning of each fiscal year.

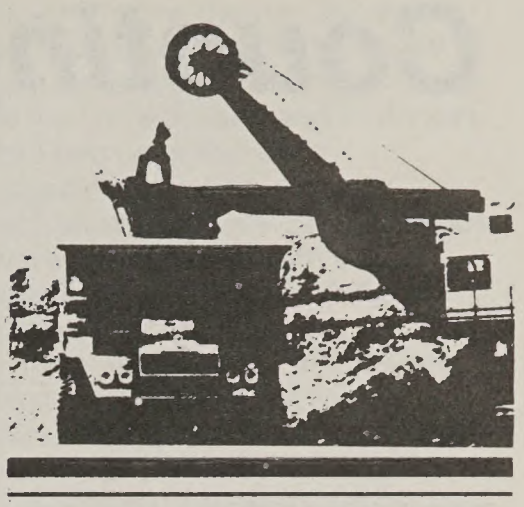
Although cooperative public participation in the Bureau's planning system has always been widely recognized, effective public involvement and coordination with other government levels is a key feature throughout the new RMP process. The objective is to provide for early, sustained, and constructive public involvement on a planned, purposeful basis.

Five specific points of minimal public input have been mandated by the regulations. These public notice and comment opportunities occur at the outset of the process; publication of the planning criteria; publication of the draft plan and draft EIS; publication of the final plan and final EIS which triggers a protest process; and after any changes in the plan as a result of action on a protest. Public comment is also invited on the Bureau's planning priorities.

Coordination with other governmental bodies is also encouraged during the planning process. Bureau objectives include keeping apprised of non-BLM plans, and to assure that consideration is given to those plans that are germane in the development of RMP's for public lands. Public involvement of other Federal agencies, State and local government officials, and Indian tribes in the development of RMP's is high priority.

This "land use zoning" approach, as applied to natural resource management, is thought to best exemplify application of multiple use management and sustained yield principles over time. The new planning system provides BLM and the public with greater flexibility while insuring more intensive analysis and management of each acre.

Making multiple use decisions in the 1980's and beyond for BLM, then, means utilizing a new planning system which is designed to result in better resource allocations and land use mixes. The planning process has been streamlined to increase productivity by formulating issue-oriented plans and by operationalizing multiple use management and sustained yield principles. New emphasis on the unique but limited capability of each resource area to provide opportunities for the "highest and best uses," without deterioration or destruction of the inherent resource values further contributes to Secretary Andrus' and President Carter's philosophies of increased productivity, efficiency and effectiveness from public land management practices. Director Gregg, in announcing these new planning regulations for BLM, said, "We are delighted to have the widespread support of the public and the administration in putting into practice our Good Neighbor Policy on the public lands through implementation of a streamlined planning and multiple use management delivery system. We feel confident that we can face the challenges of the 1980's equipped with the best scientific and technological tools available. Together, we shall fuse a partnership of public service and professional management that will carry us through the good times as well as the bad".



FOR MORE INFORMATION:

For more details about the RMP process and its related actions, we suggest that you review the new planning regulations in detail as published in the Federal Register on August 7, 1979. Also, the first planning status and new starts report published in the Federal Register on December 3, 1979, contains useful information on application of the new planning regulations. Subsequent planning status reports will be published annually, early in the fiscal year. Manuals, guidebooks, brochures and orientation/training materials, which describe the planning procedures in detail, are currently under development.

If you should still have questions about subjects covered in this article, please feel free to write to either the Director (202), Bureau of Land Management, 18th and C Streets, NW, Washington D.C. 20240, or the State Director, Bureau of Land Management for your area, at the addresses on page 23 of this magazine.

Workshop sessions give the public a chance to express just what "public" opinion is.

Counting Colorado's Eagles

Evaline A. Olson
Colorado State Office

Photo by Leander Urmig

The majestic snow-capped peaks of the Colorado Rockies were shrouded in clouds and fog so dense that only residents of the San Luis Valley could be sure they were still there.

The Bureau of Land Management (BLM) winter bald eagle habitat inventory flight had been delayed, waiting for the weather to open up. Nancy Green and John Schwarz, both Wildlife Management Biologists with BLM, were working this day's inventory.

Friendly banter helped to bolster sagging spirits. "How many birds today?" was the stock question they always exchanged. This morning it was John's turn.

Nancy replied, "Well, if we can get airborne, I'd expect to see about 50 birds."

"Sounds pretty ambitious to me," said John.

Much later than usual, the team took off with the inventory flight pilot. He has developed a keen and valuable sensitivity to their needs, knows the best speed and altitudes at which to fly, and when to circle. He understands too, just how close he may fly to the birds without flushing them.

The weather was only tolerable; the plane droned on. All eyes pierced the dull gray skies and searched the trees lining the Rio Grande River for just one bird. Minutes passed — Nancy sighed, "Where are the birds? We should have seen some by now."

Before John could answer Nancy glimpsed a large black bird out of the corner of her eye. Instantly the two questioned whether it was an immature bald, or one of the many golden eagles present in the valley. The pilot spotted the bird, too. Eye contact with the team, reinforced with a nod, told them he would veer away, then circle the bird and come around to a better angle for identification. Midway in the circle, Nancy and John simultaneously cried out, "Look at that!" Below them was an incredible sight. More than 60 bald eagles were restlessly coming from and going to a ragged cottonwood that stood alone in a fallow field. Pilot and team, working together, circled and counted, counted and circled until they were satisfied there were at least 65 bald eagles below.

As they circled, Nancy saw wisps of steam curling up under the old tree. She made a mental note to check out the area to see if the steam came from one of the many hot springs that dot the valley.

Generally, the inventory is a strenuous game of hide and seek that winds its way along snowy river banks and deep ravines, and involves miles of foot-weary hiking in search of winter habitat sites. But today there was frosting on the cake. Before returning to home base, John and Nancy counted 112 bald eagles. Not bad for a day that looked doomed to failure at the outset.

On the ground, Nancy's interest, piqued by the unique habitat, urged her to the site after the eagles had gone to their night roost. Armed with a flashlight, she quickly confirmed the presence of a small open-water pond full of carp.

Why does the BLM concern itself with counting bald eagles when its legal mandate is to manage the public lands? Very simply stated, from October through mid-April in Colorado and other western states, bald eagles have adopted as their habitat parts of BLM-administered and adjacent private lands. The bald eagle inventory on BLM-administered lands is an outgrowth of a May 1977 Presidential memorandum directing Federal agencies to provide leadership in hastening the implementation of the Endangered Species Act of 1973. A first step in this direction was for all agencies to identify Federally managed habitat essential to survival and recovery of endangered species.

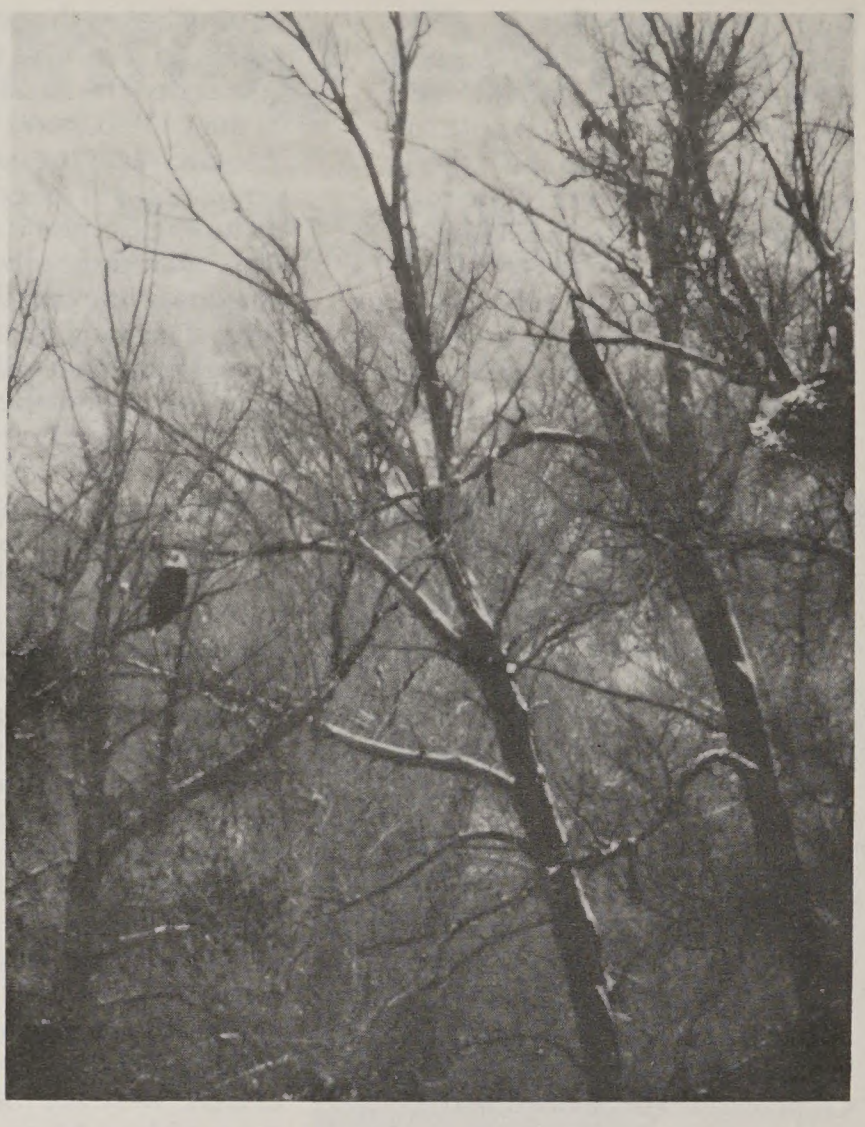
The bald eagle's place on the endangered species list has been unique from the outset. Early taxonomists divided the bald eagle into two subspecies, or races, based on specimens from as far north as Alaska and from southern states such as Florida, the northern bird being much larger than its southern relatives. An arbitrary line, approximately the 40th parallel, was named the "boundary" between the subspecies. Birds nesting north of the 40th parallel are designated as the Northern race, and those birds nesting below the parallel are the Southern race. The 40th parallel cuts across the approximate center of the United States and so divides into two races the eagle populations in several states, including Colorado. But the eagles were unimpressed with the imaginary line that divided them, since their long distance movements enabled many of the birds nesting north of the 40th parallel to spend most of the non-nesting period south of that line.

A national inventory determined that the Northern race was doing very well and, therefore, was ineligible for listing as an endangered species. The decision was one that was not to stand the test of future findings.

The Southern population was perceived quite differently. During the late 1940s and continuing throughout most of the '50s, the race was declining at an alarming rate. The reason for the precipitous decline was not apparent at first; today we know that chemical contaminants, particularly the widespread use of pesticides such as DDT, were the major cause of the problem. Many states lost their total eagle nesting populations. The spectre of extermination stalked the Southern race. They were listed in 1968 as an endangered species.

The Endangered Species Act of 1973 made it possible to list populations within a species where it is determined to be endangered throughout all or a significant portion of its range. By this time, concern for nesting birds in northern states had been voiced and their status was reviewed in 1974. In many areas they were found to be in even worse condition than their southern counterparts. It was determined that the species as a whole for the conterminous 48 states was indeed endangered throughout most of its range.

The result was that in 1978, both the Northern and Southern races were listed as endangered in all but Oregon, Washington, Minnesota, Wisconsin, and Michigan, where they were considered threatened. With this change, the national inventory procedures became



Typical winter habitat for bald eagles provides necessary protection for survival.

more clearcut.

The Colorado BLM inventory parameters are summarized in four key elements it is to achieve:

1. To identify BLM -administered lands and adjacent areas used by bald eagles.
2. To determine the period and level of use at various locations.
3. To identify the prey base utilized in local areas.
4. To determine buffer zones for tolerance of bald eagles to various types of human activity.

The inventory is an interagency effort involving BLM, Colorado Division of Wildlife (a State agency), the Lower Missouri Region of the Water and Power Resource Services, and the Forest Service. In addition, the University of Northern Colorado has two researchers assisting with wintering bald eagle populations along part of the South Platte River in northeastern Colorado.

The BLM project involves much more than counting birds. During aerial surveys, their location is plotted on a map and information is recorded concerning habitat type, activity of the eagles, presence of waterfowl and carrion near the site, and the eagles' reaction to aircraft. On subsequent ground visits to accessible sites, detailed information is collected regarding vegetation, terrain, and special features of the area. Prey remains also are gathered. Measurements taken from topographic maps are used to determine the distance from bald eagles to human use areas such as highways, railroads, and houses. All of the information is uniformly recorded for each observation to facilitate computer analysis.

There are few nesting bald eagles in Colorado. During most of the 1970s, there were two known active nests in the State, but in 1979 just one young eagle was raised.

Colorado's importance to bald eagles comes in the winter months. The wintering population is the subject of the BLM study. Information collected in January of 1979 and 1980 has been used in the nationwide midwinter counts of bald eagles sponsored by the National Wildlife Federation. The January 1979 total for Colorado was 316 bald eagles and, according to Patsy Goodman, count coordinator, "the 1980 total is approximately double that of 1979. This year's count is likely to be used as the base for future reference." Nancy Green, BLM's bald eagle inventory project leader, cautions that the increase shown in the 1980 count reflects better coverage of the State rather than an increase in the numbers of eagles present.

Prior to the start of the Presidentially mandated endangered species inventory in the winter of 1978-79, Colorado's BLM management policy concerning endangered species on the 7.9 million surface acres it administers was well established. That policy said:

—Conserve those animals, and their habitats, which are officially listed by the Federal government and the State of Colorado as threatened, endangered, sensitive or uncommon;

—Implement special land-use planning and decision-making processes needed to conserve these species and their habitats on Colorado BLM-administered land . . . and

—Maintain at least the present status quo of threatened and endangered species populations and their habitat with an overall objective of sustaining a viable population level and improving their habitats so they eventually can be removed from threatened or endangered status classification.

To accomplish these policy goals and to comply with the Endangered Species Act, there must be a thorough understanding of the distribution, abundance, and biological requirements of the bald eagle. How many are there? Where are they at different times of the year? What are their habitat and food requirements? What types and levels of disturbances will they tolerate? These questions are only a few that must be answered to arrive at solutions and decide what steps can be taken to assure recovery of our national symbol to the point that threatened or endangered status no longer is needed. Until

recently, only a few biologists were studying the birds, but today many projects are underway, including the Colorado BLM bald eagle inventory, to provide answers to these questions.

Areas of BLM-managed land used by the eagles are generally adjacent to or along rivers and reservoirs. The food resources utilized are varied. In some locations fish and waterfowl are important, at other sites winter-killed big game, carrion and rabbits provide the prey base. A few sites provide all of these food resources. Some eagles also spend the winter in arid valleys far from water.

The mobility of the bald eagle is remarkable. Their numbers in any one location may vary considerably throughout the winter. In February, for instance, there were dramatic changes in a few locations as the birds moved north. The Yampa and Little Snake Rivers in northwestern Colorado are good examples. Where 36 birds were observed on the Yampa River in January 1980, at least 66 were present in February, and the change was even greater on the Little Snake, where 53 were present in March, while only six were observed during the January count.

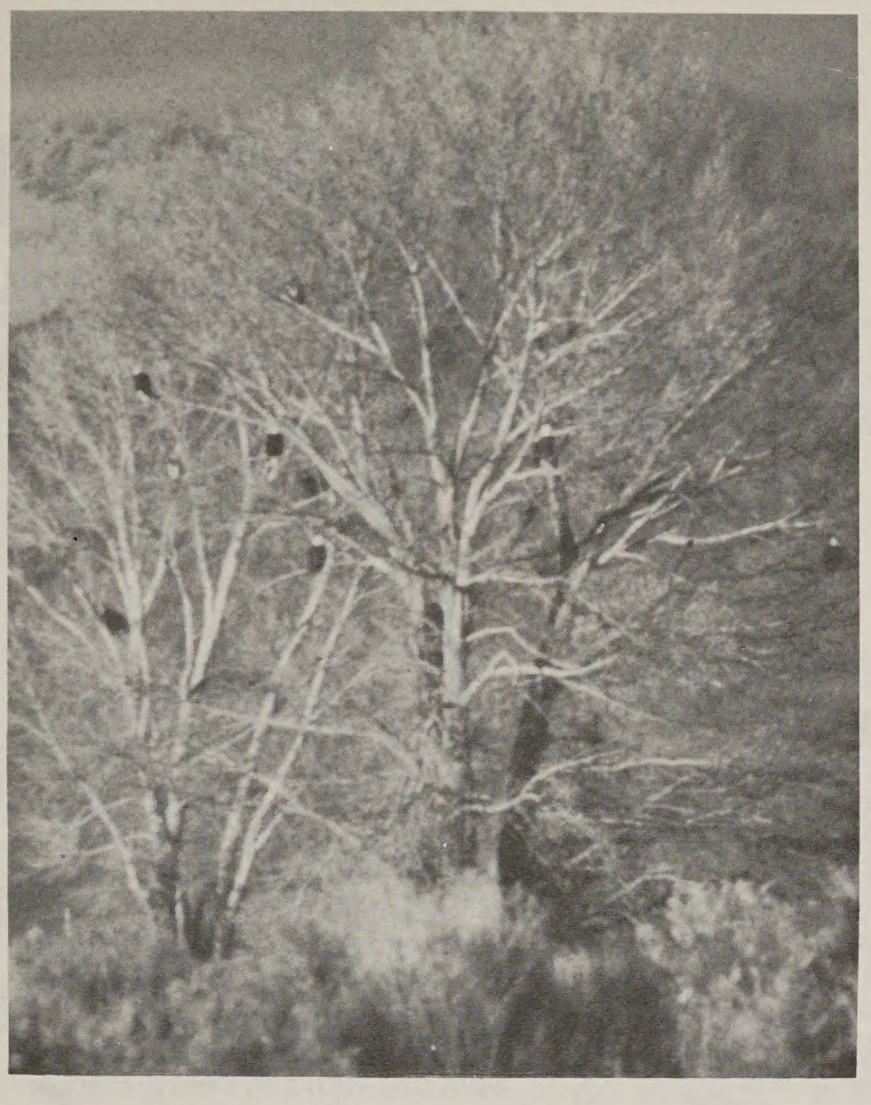
The winter 1980 inventory coverage was expanded beyond those areas surveyed in 1979. Surprisingly, the distribution of eagles this year was similar to that observed in January and February of 1979. This is of interest since 1979 was one of Colorado's worst winters in this century, whereas the 1979-80 winter was considered to be more "normal." Last year six communal roosts, those sites where eagles gather and spend the night, were identified. The same trees are used year after year. Locating and preserving these sites is of high importance since they tend to be centers of activity. Greater emphasis on locating them in the winter of 1980 resulted in identifying more than 20 additional roosts.

In the multiple use of the BLM-administered lands lies the enormous potential for conflicts. For example, there are eight communal roosts along the ice-locked Yampa River; the eagles hunt in adjacent upland areas to find rabbits and dead deer. The five roosts with the highest usage levels will be eliminated if two dams proposed for the area are built. The impacts of energy development are potentially serious in the same area primarily due to a loss of suitable hunting habitat for the eagles. Coal mining activity, too, is proposed in upland hunting areas adjacent to the roosts receiving the most use by eagles. Whether energy development and bald eagles are compatible is a serious issue facing BLM biologists in many western states.

Bald eagles show variable responses to disturbance. Regular use of roosts and feeding areas was observed 1,000 feet from highways and farm houses in several places. Generally the eagles are tolerant of moving vehicles but they usually fly when a vehicle stops within one-quarter of a mile.

The eagles sighted, counted and studied by the Bureau of Land Management inventory team are just a few of the many who winter in the lower 48 states. The wintering habitat, and its ability to provide proper nourishment and reasonable protection for survival, will send the birds back, physically fit, to their prime nesting areas. The state of the birds' health and food intake during the winter has become recognized as being of equal importance with the preservation and protection of its nesting habitat.

Humans and wildlife find themselves in ever-shrinking environments. A broad base of citizen and government concern demands application of realistic guidelines to the utilization of all of this nation's resources. At the same time, there is a recognition that reasonable constraints are necessary to maintain or enhance a way of life. The key to meeting these demands rests with bringing to the public an awareness that we need to look at, and deal prudently with, all of our natural resources.



Ever larger numbers of our living emblem, the bald eagle, are being counted.

THE EXPEDITION

From St. Louis to the Mandan Villages

PAUL HERNDON
Office of Public Affairs

When Lewis' exploration party entered into the mouth of the Missouri River, on May 4, 1804 it had officially entered the newly acquired Territory of Louisiana. Soon after that, they were in a land virtually unknown to most Americans.

However, they were not the first white men to arrive. The French had established trade with the Indian tribes along the Missouri by 1724, and by 1740 English traders from South Carolina had crossed the Mississippi River. After the English conquered Canada, their traders, operating through the Hudson Bay Company and the Northwest Fur Company, were soon active in the area. The Spanish had also explored out of Mexico as far north as what is now Montana.

Evidence of this penetration of the Missouri River valley was soon apparent to Lewis and his men. As they struggled against the currents of the River, they encountered a number of trappers coming downstream to sell their furs in St. Louis. One of these, a trapper named Pierre Dorin, turned around and accompanied Lewis upstream to a meeting with the Sioux held in mid-August.

Within the valley, it was the river that dominated the landscape. Geologically speaking, it was a young river, and with the impetuosity of youth, it prowled about within the confines of its valley, carving new channels, and devouring islands and sandbars with insatiable greed. Years later a writer would describe the Missouri as "one river that goes traveling sideways, that interferes in politics, rearranges geography, dabbles in real estate, a river that plays hide and seek with you today and tomorrow follows you around like a pet dog with a dynamite cracker tied to its tail."

On the river nothing was permanent, nothing was secure. One night Lewis and his men were awakened just in time to reach their boats before the sandbar they were sleeping on dissolved under them. The exploration journals make frequent reference to high banks collapsing as the boats passed. Every inch of upstream progress was made over the objection of the river. There were few miles that did not require men to drag boats and baggage across sandbars, or over sunken tree trunks called "sawyers."

In moving the boats, the men used whatever worked. When the wind was right, they rigged sails, but because of the twists and turns of the river, this method of propulsion could not be used for more than short stretches. Poles and oars were used whenever practical, but the most reliable method of moving the boats was to put men out on the banks to pull the boats with long ropes. This was called "cordelling," a French term that had been adopted by American boatmen. Cordelling was hard work for the men on shore. Thick undergrowth hindered progress and rough terrain offered no sure footing. Men would be forced to climb over boulders, or wade along the bank of the river, sometimes in water up to their armpits. In the journals, Lewis expressed his admiration for the good humor with which his men met this gruelling task.

Along the banks they found deep, fertile soil. At times the grass, weeds and vines formed tangled masses that the men on foot could not penetrate. There was no lack of food on this lap of the journey. Game was abundant and varied. They had some trouble with grizzly bears. If we can believe the Journals, the grizzly, North America's largest carnivore, was one of the few animals that would attack men without provocation.

One unexpected feature of the country was the lack of Indians. Lewis had been charged with the mission of telling the Indians that they were now subjects of the United States, and he eagerly sought his first opportunity to do so. Although he sent out scouts, it was mid-July before they found the first Indian.

While Indians appeared in overwhelming numbers at times, they were never a numerous people. Naturally there are no reliable population figures on the number of Indians in North America before the coming of the white man. One authority has estimated that, at the time of Columbus, there were onl 850,000 in that part of the contine north of Mexico. This figure may

The great differences between the cultures of the the European and the Indian became clear when the Chief of the Arikara spoke out in protest over the humiliation of flogging and told Lewis he thought death would be a less offensive punishment.

be too conservative, but the highest estimate the author has found sets the total for the same area at 3½ million. At the time Lewis and Clark were ascending the Missouri, it has been estimated that there was less than one Indian family per 50 square miles in the Missouri River Basin.

After leaving St. Louis on May 4, 1803, the party stopped briefly at the upstream settlements of St. Charles and La Charrette. La Charrette, a seven-house community with perhaps 40 families living in the vicinity, was the last white settlement on the Missouri. It was also the home of Daniel Boone, who then lived a few miles from the main settlement. He was 70 [illegible]s old and still vigorous. (He [illegible]d live to be 95.) But if Lewis [illegible]ew that the old pioneer was nearby, he made no attempt to contact him.

On August 2 the party finally managed to contact a small party of Indians. They called the site "council bluffs," but the location was nearer to present day Sioux City, Iowa than to the present day Council Bluffs. The meeting lasted for two days.

Shortly after the meeting, the party suffered its only casualty when Sargent Charles Floyd died. From the description of the Sergeant's illness as recorded in the Journals, we can guess that he died of appendicitis—a condition that would have likely proven fatal at that time even if he had received the best medical care.

In mid-August Lewis had his first meeting with the Sioux. Things went so well that he found it hard to believe these Indians deserved their reputation as the scourge of the Plains. He changed his mind a few days later when a second party of Sioux tried to bar his passage upriver. Only a determined show of force averted an attack that might have wiped out the expedition.

From there the party moved up river to be well received by the Arikara. The Arikara had heard about the standoff with the Sioux and were kindly disposed toward anyone who had discomforted their ancient enemies, the Sioux. While Lewis and his party were camped with the Arikara, an incident took place that aptly illustrated the gulf between European culture and that of the Indians.

Lewis, a strict disciplinarian, had ordered one of his men to be

flogged—a measure of discipline that was common among military organizations all over the world at that time. However, the Chief of the Arikara was horrified, and cried out in protest over such humiliation. Recognizing the need for good will from all Indian tribes, Lewis explained the nature of the man's offense and the necessity of punishment. The Chief readily agreed that the man richly deserved to be punished. Lewis then asked the Chief what kind of punishment he would order under the same circumstances.

"I would kill him," the Chief replied.

In early November, Lewis made winter camp among the Mandan Indians. As a tribe, the Mandans were unusual among the plains Indians. They lived in villages and had a highly developed system of agriculture. Because of their light colored skin, eyes and hair—blue-eyed blonds were not unusual among them—many whites believed that they had descended from some race of white men. Today most anthropologists agree that they were solely light-skinned Indians; never the less speculations about their European origins surfaces from time to time.

Throughout the history of the tribe, the Mandans maintained friendly relations with the whites. When Lewis and his party arrived they found a number of French-Canadian and British traders and trappers living in the Mandan villages. He firmly reminded them that they were on United States soil, and then assured them they were welcome to continue their trade so long as they remembered that fact.

The winter was a busy time for Lewis. After his men constructed winter quarters, he had opportunity to use his diplomatic skills. He was in frequent contact with representatives of both the Hudson Bay and the Northwest Fur companies. Both of these companies were British controlled and operated from Canada, but they were bitter rivals. Traders from the older Hudson Bay Company contemptuously referred to the Northwestern men as "Peter Ponds Peddlers," and the Northwestern men said the initials HBC, stood for "Here Before Christ." Both groups had been zealous in their efforts to establish their presence in the Missouri Basin. There can be little doubt but that Lewis' efforts went a long way to forestall British penetration into the area.

His diplomatic efforts did not neglect the Indians. He presented a grist mill to the Mandans. Their elation over the gift caused him to wonder about their fondness for corn meal. Later he learned that the enthusiasm stemmed from their anticipation of breaking up the mill so the metal could be used for making weapons and other tools. He scored another diplomatic coup when he had John Shields set up his bellows to hammer out weapons and mend tools for the Indians. Lewis used the winter to establish excellent relationships, not only with the Mandans, but with neighboring tribes as well.

This did not include the Sioux. Unknown to Lewis, the Sioux had met in Council that winter and declared war on the expedition. Fortunately Lewis and his party would be long gone before the Sioux could get their war party organized the following spring.

From among the French Canadians wintering with the Mandans, Lewis hired two men. Baptiste Lepage was hired because of his skill as a boatman. Toussaint Charbonneau was hired as an interpreter.

While the addition of two men to the roster was only routinely noted in the Journals, the hiring of Charbonneau was to give birth to one of the enduring American legends. For reasons not altogether clear, Lewis agreed to allow Charbonneau to bring one of his Indian wives along on the journey. Historians have since speculated about Lewis' motive for this, but no completely satisfactory explanation has ever been offered. From all that is known about Lewis, this seems to have been out of character.

At that time Charbonneau had three Indian wives, but selected the youngest, a 17-year old Shoshone girl named Sacajawea to accompany him to the Pacific Ocean and back.

Lewis showed his concern for propriety by having William Clark perform a marriage ceremony over Charbonneau and Sacajawea. Presumably, pious Easterners could have questioned Clark's authority to perform such a ceremony, but Lewis had done his best, under difficult circumstances, to cloak the presence of a woman in the party in an air of respectability. If Charbonneau or Sacajawea had any thoughts about the matter, no one has bothered to record them.

During the winter Lewis had ample opportunity to practice using the medicines that Doctor Rush had provided. (See "Getting Ready To Explore the New Territory" *Our Public Lands,* Summer 1979.) His "doctoring" was mainly confined to treating the illnesses of his men, but he did amputate the toes of an Indian boy suffering from a severe case of frostbite. Shortly after that his skills were sorely tested when Sacajawea gave birth to her first child. It was a difficult birth and Dr. Rush's medicine chest contained nothing for the treatment of women. Lewis was helpless until a French-Canadian trapper named Jusseaume suggested a folk remedy. Following the suggestion, the desperate Lewis found a set of rattlesnake rattlers, powdered two sections and gave the powder to Sacajewa in water. Whether a result of the medicine, or whether her time had come, Sacajawea delivered the child and named him Jean Baptiste. Lewis duely recorded the treatment for the benefit of Dr. Rush.

During that same winter William Clark used his time to gather every scrap of information he could glean from Indians or trappers about the upper Missouri. One of the Mandan Chiefs named Big White was especially helpful by drawing reasonably accurate maps in the dirt. Clark copied these onto paper and incorporated them into his own hand-drawn charts.

Some of these charts included the area now known as Yellowstone National Park. Some believe these charts may have influenced John Colter who was to become the first white man to visit the area several years later.

Public Land Sales

Tracts of public land are sold by the State Offices listed on this page. Sales are held only when land use planning indicates that the public interest will be better served by disposal of the tract in question. In light of the time involved in preparing, printing, and distributing this publication, it is impossible to report on all sales far enough in advance to give most readers an opportunity to participate. However, notices of sale will be published in the Federal Register and in local newspapers serving the community where the land being offered is located. These notices will appear at least 60 days before the sale. Currently, the only States authorized to conduct auction sales are Nevada and Wyoming.

STATE OFFICES

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ALASKA:
701 'C' Street
Box 13
Anchorage, AK 99513

ARIZONA:
2400 Valley Bank Center
Phoenix, AZ 85073

CALIFORNIA:
Federal Building, Room E-2841
2800 Cottage Way
Sacramento, CA 95825

COLORADO:
Colorado State Bank Building
1600 Broadway
Denver, CO 80202

STATES EAST OF THE MISSISSIPPI RIVER, PLUS IOWA, MINNESOTA, MISSOURI, ARKANSAS AND LOUISIANA:
Eastern States Office
350 So. Pickett St.
Alexandria, VA 22304

IDAHO:
Federal Building, Room 398
550 West Fort Street
P.O. Box 042
Boise, ID 83724

MONTANA, NORTH DAKOTA AND SOUTH DAKOTA
222 N. 32nd Street
P.O. Box 30157
Billings, MT 59107

NEVADA:
Federal Building, Room 3008
300 Booth Street
Reno, NV 89509

NEW MEXICO, OKLAHOMA AND TEXAS:
U.S. Post Office and Federal Building
P.O. Box 1449
Santa Fe, NM 87501

OREGON AND WASHINGTON:
729 N E Oregon Street
P.O. Box 2965
Portland, OR 97208

UTAH:
University Club Building
136 East South Temple
Salt Lake City, UT 84111

WYOMING, KANSAS AND NEBRASKA:
2515 Warren Ave.
P.O. Box 1828
Cheyenne, WY 82001

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